Volunteer Firemen

OCTOBER 1939

NATIONAL FIRE PROTECTION ASSOCIATION INTERNATIONAL

60 Batterymarch Street Boston, Massachusetts

The new building which will provide dormitory, laboratories, drill tower, lecture halls and classrooms for students in the firemanship training course at Oklahoma A. & M. College, Stillwater, Oklahoma. Inset: J. Ray Pence, Chief of the Stillwater Fire Department in which students serve while taking training.

FIRE SERVICE'S "WEST POINT" BEGINS SECOND YEAR

THE firemanship training course at Oklahoma Agricultural and Mechanical College, which is making a bid to be a "West Point" for the fire service, this month begins its second year with greatly increased facilities for training. A handsome new building will provide dormitory, laboratories, drill tower, lecture halls and classrooms for the expected enrollment of over 30 men in the course. In addition the building will serve as a fire station for the college area of the city of Stillwater, Oklahoma, where Oklahoma A. & M. College is located.

The job of introducing the men taking this course to practical fire department work is that of Chief J. Ray Pence of the Stillwater Fire Department. While taking the course the men serve as members of his department. Approximately half of the enrollment will be quartered at the college station and the rest at the headquarters station in the center of the city. With the permanent force of nine men including Chief Pence, these students will man four major pieces of apparatus. Headquarters will have a 1,000-gallon pumper and a squad (salvage and rescue) car. For the college station the city of Stillwater is buying a new 600-gallon pumper and the state is purchasing a 750-gallon pumper. The latter is especially for training work.

Last year Chief Pence made instruction possible for the twelve men who completed the first year of the course by allowing the use of his apparatus. Lectures, laboratory work and classes were held in the regular buildings of the engineering school and the school of technical training. This school is the first attempt to give instruction of college standing for men who hope to make the fire service their life work. With a year's work behind, and these fine new facilities, it should be a continuing success.

The firemanship training course is one of the two-year courses offered by the school of technical training which is under the direction of Professor W. Fred Heisler. While the course does not lead to a degree its two years of work will be accepted by the college toward the four required for a degree. Instruction is under the direction of Professor R. J. Douglas, formerly chief of the fire department of Moorefield, West Virginia. A catalogue describing the school and the firemanship training course may be obtained by addressing Oklahoma Agricultural and Mechanical College, Stillwater, Oklahoma.

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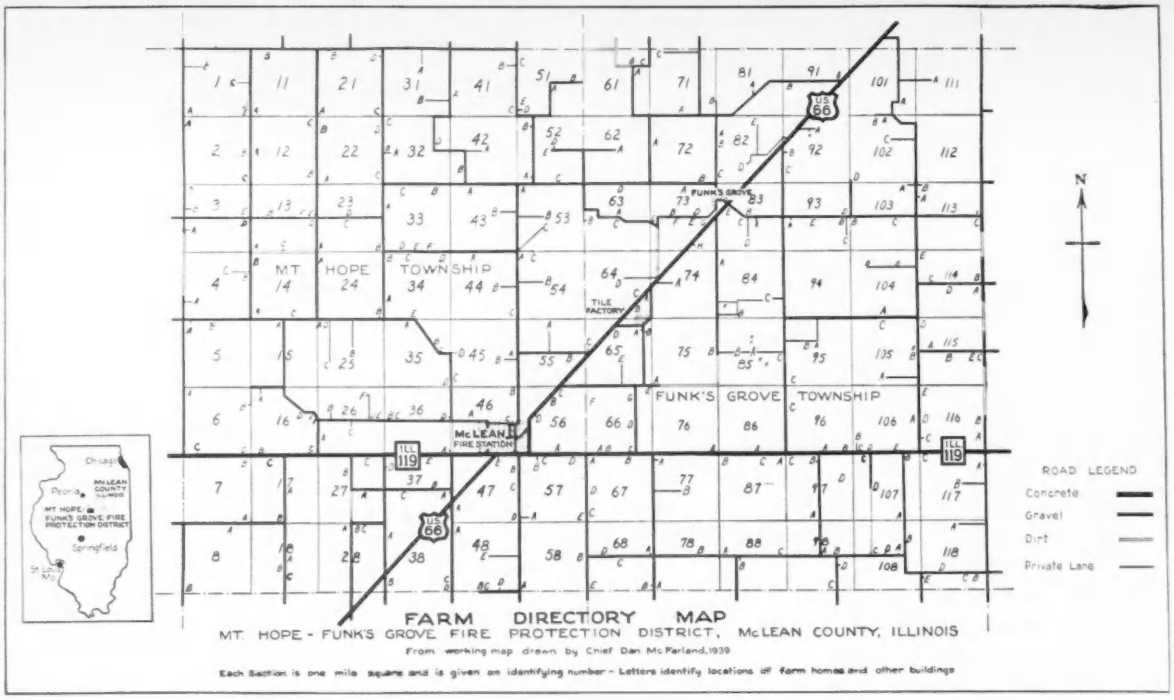


LOCATING THE FARM FIRE

By Chief Dan McFarland

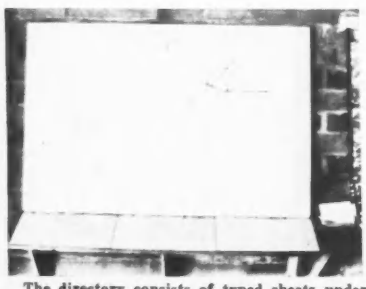
Mt. Hope-Funk's Grove Fire Protection District, McLean County, Illinois

IN THE home town we must and do know the street and numbering system and hydrant locations and the alarm will give the street address or box number. An alarm from the country will say only that "Jim Farmer's house is on fire." If you expect to stop that fire, you had better know where Jim's house is. A rural department like ours must have a sure and fast method of identifying the location of farms from which fire calls may come. The Mount Hope-Funk's Grove Fire Protection District is a tax-supported unit made up of two townships and covering 96 square miles. It embraces fine corn belt land with good improvements, including large hay and dairy barns and large corn storage cribs.

The heart of our system is a directory. In this is listed the name of every family in the district. It is necessary to have the name of both owner and tenant in most cases, as a neighbor phoning in an alarm might report the owner's name if the tenant is new. The names are listed in the same manner as in a telephone directory.

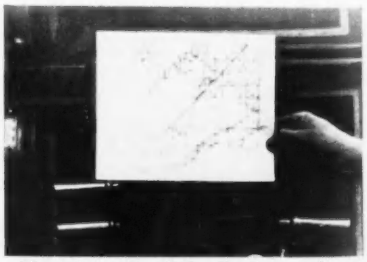
The directory is keyed to a large wall map by a system of numbers and letters which positively identify the location of every building in the district. Each township in our district is broken down into legal sections one mile square. This is a great convenience as a number can be assigned to each mile-square. (Any district could be marked off in mile-squares where these legal sections do not exist.)

Numbers assigned to the squares are such as to tell the location. With the section most northerly and westerly as the starting point, Section 45 is easily identified as four sections east and five sections south. The location of farms, schools, churches and other buildings in each section is spotted by an identifying letter, A, B, C, D, and so on. Let's say "Jim Farmer's" house is in section 45 and designated by the letter "A." His code number in the directory is 45-A and may be located instantly by referring to the map. We have the directory in typed sheets under glass on a shelf at the fire station. The district map reproduced herewith is mounted on the wall immediately above.



The directory consists of typed sheets under glass, on a shelf at the fire station. The map, mounted on the wall directly above, scales 5 inches to the mile and is painted in enamel on a sheet of plywood 4 by 6 feet.

TO MAKE such a map and directory, I suggest first that a road map of the district be drawn on a scale of 2 or 2½ inches per mile for a working map. This can be made from latest maps but every road must be checked by actually driving over it. To make the directory, you've anyway got to make a canvass of the entire district and this work can be combined. As you check roads, you place letters on the map designating building locations and get the names of owners and tenants corresponding to these locations. When the data is completed and checked, the map may then be traced. Blue prints and black-and-white prints may be made from the tracing and these prints will be found useful for a variety of purposes.



There is a copy of the directory road map for the driver of the apparatus. This copy is drawn on a piece of artists' board 9 by 11 inches. For protection, it is covered with transparent sheet cellulose.

MAKING A GOOD JOB OF IT

BY WARREN Y. KIMBALL

"ONE of the smartest things that the department has done recently was to get the Water Department Superintendent to cooperate with us in making some flow tests from hydrants in various parts of the town," said Captain Buck as Fire Company No. 1 gathered for their monthly meeting.

"You can't tell much by looking at the part of the hydrant sticking above the ground as to what is backing it up under the surface. For example, we found that even with the pumper hooked up, the hydrant on the 4-inch dead-end main down by Shire's farm at the edge of town couldn't give us enough water to supply a single 1-inch nozzle tip. Probably the old main is half full of sediment. Anyway, we know now that if we get a fire down on that farm the best that we can expect to do is to supply a couple of lines of 1½-inch hose," he remarked.

"I was down that way recently," put in Art, "and I noticed that the old hydrant had been repainted with a red top."

"Yes," said the Captain. "Red is a danger signal and that is the standard marking for hydrants backed up with a poor supply. Hydrants that are on a good supply main have green tops and those with a fair supply have orange tops. That is the standard marking recommended by the N.F.P.A., water works and fire chiefs' organizations. There is no need of getting fooled by a poor hydrant with such a system of marking backed up by flow tests from the individual hydrants."

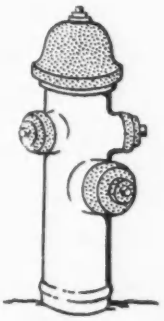
"Water is our ammunition with which to fight fire and it's up to us to know how to get the most from the available supply in any part of town. That requires knowing something about the capacity of the mains because a hydrant is only a connection by which we can take water from the mains.

"You know there was one thing that I learned when we tested that old hydrant down by the farm," Bill broke in, "and that was that we can't always depend upon the stand-still or 'static pressure' in the water system to give enough pressure for a satisfactory fire stream. When we had the gauge on that hydrant before a stream was turned on, it showed over 30 pounds pressure but when we tried to charge a big line we couldn't get over 10 pounds pressure with the water flowing."

"The reason for that," spoke up Bert, "is that when the water is flowing there is friction loss in water mains much as in fire hose. In an old 4-inch main like the one we are talking about there would be about 8 pounds pressure loss in each 1,000 feet of pipe if you were only taking enough water for two lines of 1½-inch hose. That would be only about 100 gallons per minute of water flowing. If you tried to get 200 gallons through that main (to supply a fair 2½-inch line) the friction loss would be about 30 pounds per 1,000 feet of main and that would use up 'static' or stand-still pressure pretty fast."

"Yes," the Captain broke in, "when we opened the hydrant the friction loss in the long dead-end main used up most of the 'static pressure.'

"A lot of fire departments are fooled by this and because they have a high static pressure at their hydrants they think that they can get along without using their pumpers. Perhaps they can—at small fires which only require a single line,—but when they try to get a large flow out of their water system they often find that the flow pressure is inadequate for effective hose streams."



Fire Hydrant Markings

Standard Hydrant Markings

Flow	Color of tops and nozzle caps
1000 g.p.m. or greater	Green
500-1000 g.p.m.	Orange
Less than 500 g.p.m.	Red

Capacities are to be rated by flow measurement and tests of individual hydrants at a period of ordinary demand. Rating is to be based on 20 lbs. per sq. in. residual pressures when initial pressures are over 40 lbs. per sq. in. When initial pressures are less than 40 lbs. per sq. in. residual pressures shall be at least half of the initial.

"That reminds me of an actual fire I saw while driving out west of here last summer," said Bert. "This one had gained considerable headway in a large residence and was threatening several other buildings. There were two hydrants nearby on a 6-inch dead-end main. Due to the headway of the fire, two 750-gallon pumpers were put into action, each supplying at least two lines, requiring a total discharge of close to 1,000 gallons a minute. This was more than the dead-end main could possibly provide. None of the streams were effective. The result was that the fire spread to several nearby properties. The firemen blamed the water department for their failure to hold the fire. They were told that they should have placed their second engine at a hydrant located on a large main only one block away where there was an abundant supply."

"As a matter of fact," the Captain added, "most waterworks men today are trying to cooperate with fire officials by not installing any more of the 4-inch mains which have proven inadequate for modern fire fighting; and by looping or tying together mains wherever possible so that hydrants will not be on dead-end mains but will be supplied from at least two directions."

"What is the effect of looping mains to supply a hydrant?" Art asked.

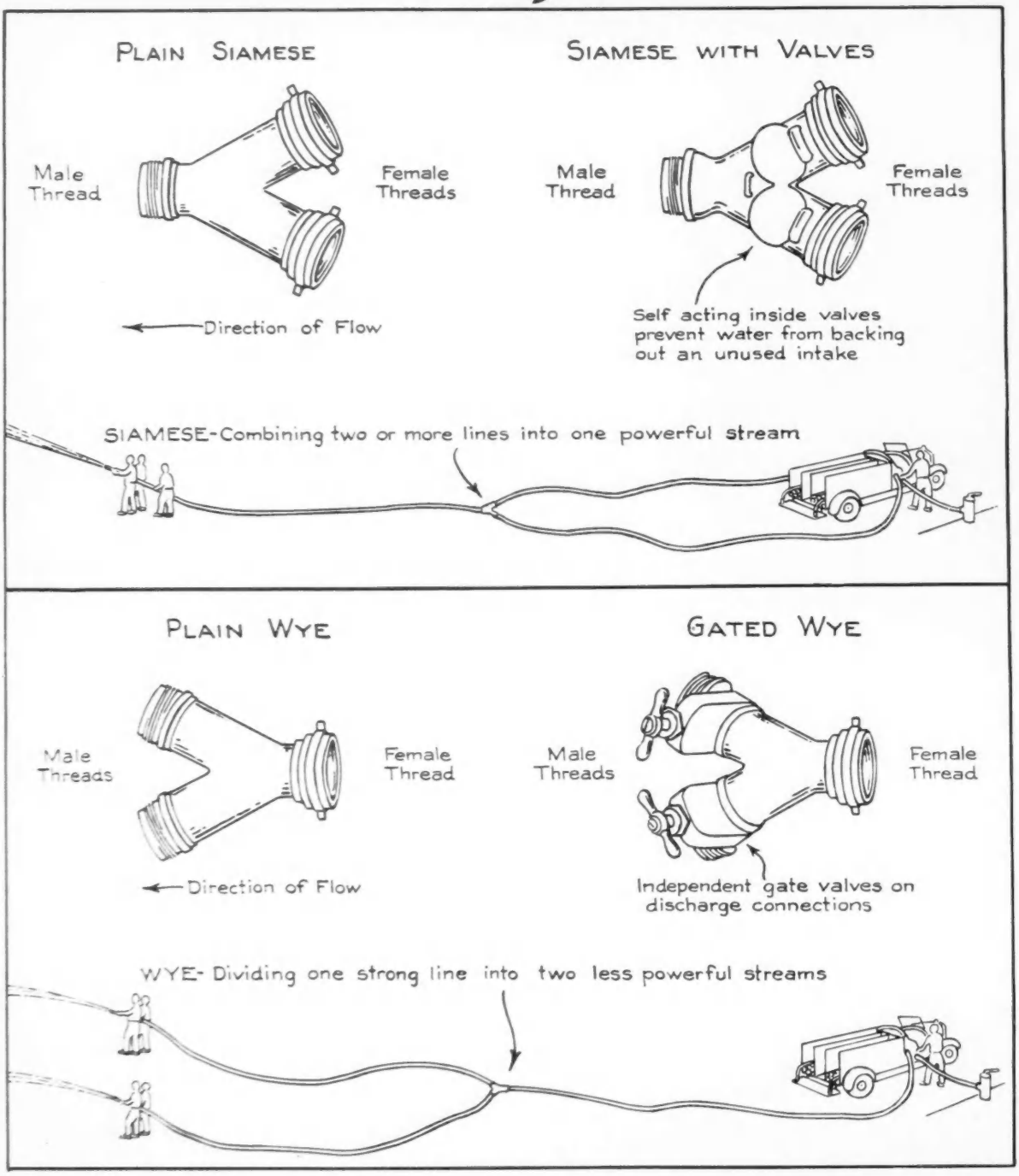
"It is just about the same as that of supplying a nozzle through two lines of hose," replied the Captain. "You cut your friction loss in half. Also you can use two hydrants on a loop and know that each will have a reasonable supply whereas the last hydrant on a dead-end main often cannot be depended upon if another hydrant nearer the source of supply is turned on. Of course, it costs money to replace small mains and make additional tie-ins and therefore such desirable improvements usually come gradually."

"In many cases," put in Bill, "it would be just as easy for us to use a hydrant on a strong main as another on a weak main if we knew what was backing up the hydrant under the ground. I move that we ask the Chief to have the Water Department furnish the fire station with a map showing the water mains and hydrants in this town. We can color the hydrants on the map red, orange, or green to match the color of the tops of the actual hydrants as determined by the flow tests."

"Second the motion," responded Art. "Then we can map out our plans with a definite knowledge of the hydrant supply available at each location."

"The motion has been unanimously carried," the Captain announced. "I'll see the Chief about it."

Siamese and Wye Connections



"Siamese" and "Wye" are terms guilty of causing a lot of confusion. The words have distinctly different meanings, but the equipments to which they refer look very much alike. To avoid confusion use the term "Siamese" when referring to a connection which combines the flow of two or more lines to make one; "Wye" for a connection which splits the stream from one line into two or more separate ones.

Both devices are made in a variety of types to meet various situations. Siamese and wye connections having 2½-inch intakes and outlets, as illustrated herewith, are standard equipment for pumpers. They are useful for layouts involving long lines and in making hydrant connections. By using a gated wye at a hydrant, the water may be started in one line while the other is being laid.

Siamese connections are available to permit two 2½-inch lines to be siamesed into the 4½-inch intake of a pumper. A similar wye makes it possible to take two 2½-inch lines off a 4½-inch hydrant outlet. A commonly used wye will provide two 1½-inch "leader" lines from the end of a 2½-inch line.

FIRE PREVENTION WEEK · OCTOBER 8-14

Illustration from National Board of Fire Underwriters' 1939 poster

★ In planning and carrying out Fire Prevention Week programs the fire department naturally is the leading factor. This year, as in the past, A.D.T. offers to fire department officials its full cooperation in this annual effort to reduce fire losses.

In commercial and industrial establishments it is of particular importance to eliminate, through special Fire Prevention Week checkups, needless hazards that have developed during the year. A.D.T. will be glad to cooperate with you in urging owners to conduct such surveys, for which the National Board of Fire Underwriters has prepared special self-examination blanks. These blanks are available, without obligation, at every A.D.T. Central Station.

A.D.T. also will be glad to cooperate with you in recommending improved protection for any occupancy where you feel present provisions are inadequate. If you have any "fire traps" in your town, where belated discovery or a delayed alarm would mean a hopeless battle, let us know and we shall be glad to consult the owners about automatic protection to assure immediate discovery and prompt and accurate alarms.

For any assistance or cooperation you may desire, please do not hesitate to get in touch with your nearest A.D.T. office.

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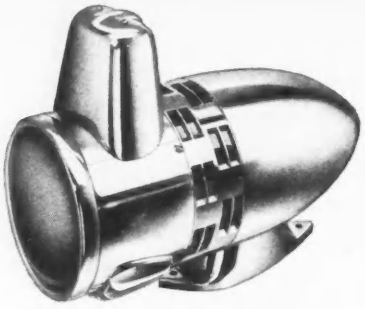

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Volunteer Firemen

Volume 6 Number 10
Published by the National Fire Protection Association, a voluntary non-profit organization, 60 Batterymarch Street, Boston, Mass.
Percy Bugbee General Manager
Robert S. Moulton Technical Secretary
Horatio Bond Chief Engineer
Warren Y. Kimball Fire Record Department
Strafford Wentworth Associate Editor

October, 1939

IN 1902 a young man named Sherwood Brockwell joined Rescue Fire Company of the volunteer fire department of Raleigh, capital city of the State of North Carolina. Ten years later the department was on a paid basis and he was Chief. He was one who believed that fire departments should seek public support in eliminating our needless fire waste and spoke on the subject at public gatherings whenever the opportunity offered. He also introduced regular drill and training work in the Raleigh Fire Department.

In this work he attracted the attention of Col. Young, state insurance commissioner, who in 1914 made him State Fire Marshal. This fall Sherwood Brockwell is celebrating twenty-five fruitful years in that office.

If in going up and down the State of North Carolina, you get the impression of fire departments better equipped, better trained and doing a better fire prevention job than in many other states, Fire Marshal Brockwell's personal efforts are in large measure responsible. On taking office he set cut and personally organized and conducted drill and training work in the fire departments of the principal cities of the state. So far as we have any record, this work in North Carolina represents the first state-wide fire department training program. Fire Marshal Brockwell is Director of the North Carolina Fire College, an annual state short course started in 1928. He has also served as director of state fire schools in Maryland, Virginia, South Carolina and Georgia.

North Carolina is practically the only state of which it can be said that "fire-trap" schools have been eliminated. Fire Marshal Brockwell is responsible. He established the principle of building school buildings fire-resistive. He got rid of school auditoriums on upper floors. He showed architects how to design buildings safely as well as economically. He introduced them to the "smokeproof" tower and got them to use it in place of the dangerous and often useless "fire escape."

The N.F.P.A. is proud of Fire Marshal Brockwell's participation in its work as a member of its committees on Safety to Life and Building Construction. He is also a past chairman of the N.F.P.A. Fire Marshals' Section.

But it is as a fireman that Sherwood Brockwell is most proud of what he has done in the last twenty-five years. He is a fireman first and last, doing a fireman's job in the broadest sense.

MEMBERSHIP in the Volunteer Firemen's Section continues to grow. Last month 9 departments with 186 men joined the Volunteer Firemen's Section for the first time. In addition 35 fire departments with 760 men renewed membership.

The total membership for the Section is now 682 departments and 14,972 firemen. The following including one industrial fire department were enrolled during the past month:

Naperville Fire Department, Naperville, Illinois.

Charlotte Fire Department, Charlotte, Iowa.

Cleveland Fire Department, Cleveland, Minnesota.

Welcome Volunteer Fire Company, Oaklyn, New Jersey.

Chapleau Fire Company, Chapleau, Ontario.

Algoma Steel Corporation, Ltd., Sault Ste. Marie, Ontario.

North Kingston Fire Department, Wickford, Rhode Island.

Weyburn Fire Brigade, Weyburn, Saskatchewan.

Faith Volunteer Fire Department, Faith, South Dakota.

A Problem Question FOR OCTOBER

Suggested for discussion at company and department meetings this month

95

What steps can be taken to protect important public or business records before, during and after fires?

The answer to the problem question for September will be found on page 4.

The "Model A" Super

Which Every Volunteer Fire Department Should Know About

Both 1 Quart and 1½ Quart Sizes

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FIRST:—

It is safe to use on electrical fires. Fyr-Fyter fluid is not only a powerful fire extinguisher fluid, but a most certain insulation—safeguarding the operator against serious injury or possible death from electrical contact.

AND SECOND:—

It is effective on concealed fires in walls and other "hard to reach" locations and is effective also on fires in greases, oils and the more flammable liquids.

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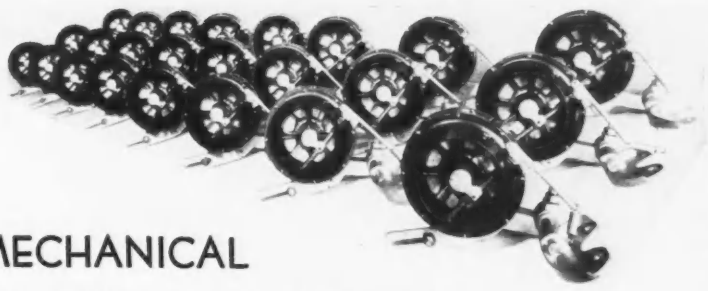

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PYRENE PRIZE LETTER CONTEST

EACH month three cash awards are given jointly by the Pyrene Manufacturing Company of Newark, New Jersey, and VOLUNTEER FIREMEN to firemen who write the best letters telling of effective work done with approved fire extinguishers. The prizes are: first, $10.00; second, $3.00; and third, $2.00. To win one of the prizes does not require any fancy writing ability. If you know of a fire where good work was done with an extinguisher just tell the facts in your own way. The contest is open to members of fire departments including organized industrial brigades. Read the contest rules below. Next month perhaps your name will be among the prize winners.

FIRST PRIZE—$10.00

JOHN VENNER
Volunteer Fire Department
Holland, New York

Seemed to Be a Volcano

One evening while I was talking with one of my brother volunteers at the Holland Garage, a mechanic was trying to start an old car by priming the carburetor and vacuum tank. He slopped about a gallon of gasoline on to the engine and floor before getting it primed to his satisfaction.

When he turned the engine over with the starter there was a back-fire. It ignited the spilled gasoline and the grease and oil that had collected on the engine and its splash pans. Fire then flashed to a full gallon measure of gasoline that was standing on the floor nearby. In a moment the car was turned into a mass of flames.

I yanked a 2½-gallon foam extinguisher from the wall, called for someone to turn in an alarm and started fighting what seemed to be a volcano. Before the other fireman could run diagonally across the street and return with another extinguisher (a distance of about 100 yards), and before any alarm had been turned in, the fire was completely extinguished and I was discharging a small remainder of foam on the ground outside.

I now have great respect for the seemingly puny hand extinguisher with which my greatest hope had been only to control the fire until heavier equipment arrived.

SECOND PRIZE—$3.00

FLOY S. RUPERT, *Assistant Chief*
Pittsburgh Plate Glass Co. Fire Brigade
Ford City, Pennsylvania

Looked Like a Total Loss

Several years ago while operating a lumber truck in my time off, I had a load to deliver where a summer camp was being built. There was no road into this camp site. I had to drive over rocks at the edge of a creek to get in.

Unknown to me at the time, the added strain or twist on the truck pulled the exhaust pipe partly out of the engine manifold. On the way home I noticed smoke. Investigating, I found the seat cushion on fire.

The 20-gallon gasoline tank, nearly full, was under the seat so I stopped the truck as soon as possible. Lifting out the seat I found the tank on fire around the filler cap. A seam in one end had ruptured slightly and was burning also. Evidently a spark from the parted exhaust line had started the fire.

I tried to smother the fire with dirt, but it only spread the flames. The cab took fire. I was helpless to prevent it.

Just as it looked as if the truck would be a total loss, a nearby resident ran down the bank and handed me a 1-quart carbon tetrachloride extinguisher. I lost no time in using it and soon had the fire out.

THIRD PRIZE—$2.00

W. M. TATUM, *Chief*
Newellton Fire Department
Newellton, Louisiana

Extinguished Refrigerator Motor

A few weeks ago I was standing on a street corner with two of my firemen when a small colored boy ran up and told me there was a fire in a local meat market. Quickly we ran to the place and found fire coming from a side window. I ran across the street and borrowed a large carbon tetrachloride extinguisher from a filling station. I attacked the fire and in a few moments extinguished the flame.

It was only then that we found what was burning. It was the motor to the refrigerator. The fire was out so quickly that I didn't even turn in an alarm. The only damage was to the motor which was burned out.

HONORABLE MENTION

A. N. SCHRECENGOST, *Chief*, Pittsburgh Plate Glass Company Fire Brigade, Duplate Division, Creighton, Pennsylvania.

M. S. SCOGIN, Fire Department, Jacksonville, Texas.

GEORGE CHENOWETH, Ontario Hose Company No. 3, Liberty, New York.

CONTEST RULES

1. Contestants in the Pyrene Prize Letter Contest must be members of their local fire department.
2. Letters are to describe actual experiences where an approved fire extinguisher of any make has saved lives or property.
3. Trade names may be used but will be deleted in publication. Publishers reserve the right to edit winning letters to permit publication.
4. Each contestant automatically vouches for the truth of the facts presented from his own or others' experience.
5. Only one letter may be submitted each month.
6. Letters must be legibly written in ink or typewritten on white paper, one side only. Preference will be given to letters not over 250 words in length.
7. Letters received after the 8th of the month will be judged in following month's competition.
8. Monthly prizes in cash will be: 1st, $10.00; 2nd, $3.00; and 3rd, $2.00.
9. Address contest letters to Pyrene Prize Letter Contest, National Fire Protection Association, 60 Batterymarch St., Boston, Mass.

● **FIVE PIECES of Ahrens-Fox fire apparatus protect the New York World's Fair. Photo shows one of the 1000 gal. High Pressure Piston Pumpers.**

AHRENS-FOX APPARATUS PROTECTS Both World's Fairs!

AT NEW YORK *and* at San Francisco the Fire Departments are protecting the great Expositions of 1939 with the help of Ahrens-Fox Fire Apparatus.

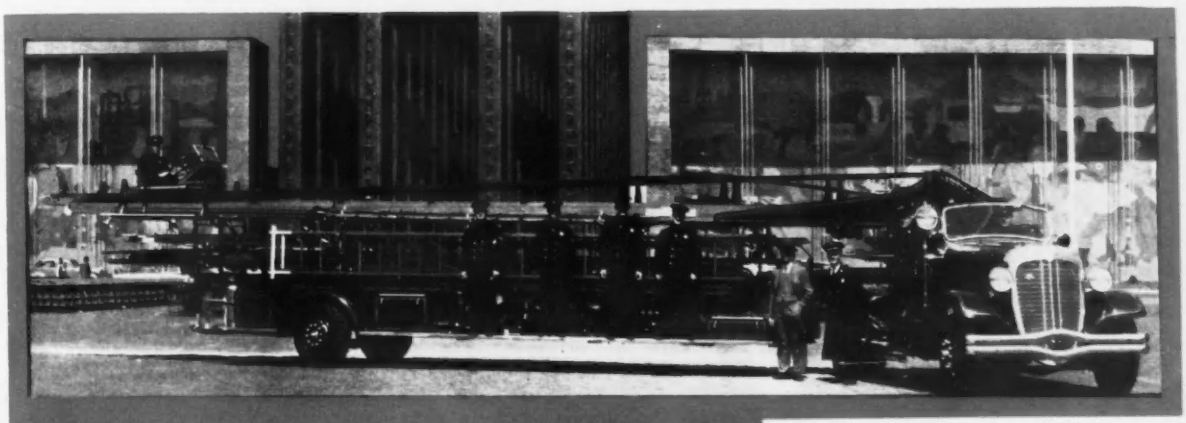
The Extraordinary hazards of life and property involved in the great concentrations of values on Treasure Island and in Flushing Meadow Park have received the intensive study of the best fire protection engineers. So the selections of Ahrens-Fox Apparatus for the use of the professional fire fighters assigned to these Battalions is a real tribute to Ahrens-Fox design and quality.

The Five units comprising the 55th or World's Fair Battalion of the Fire Department of the City of New York are exclusively Ahrens-Fox equipped.

The Exposition Battalion of the San Francisco Fire Department has two new Ahrens-Fox Aerial Ladder Apparatus of the latest type to cover the lofty heights of the beautiful structures of Treasure Island.

Inspect these modern units of Fire Apparatus when you attend the convention of the International Association of Fire Chiefs in San Francisco and visit New York's "World of Tomorrow" — or write for details.

THE AHRENS-FOX FIRE ENGINE COMPANY, CINCINNATI, OHIO



● **"MUCH IMPRESSED BY SMOOTH PERFORMANCE" — says Chief Charles Brennan, of the City of San Francisco Fire Department.**

BEVERLY HILLS INSTALLS THREE-FOLD FIRE ALARM SYSTEM

ANOTHER PROFITABLE INVESTMENT IN PUBLIC SAFETY

Beverly Hills, the exclusive Pacific Coast residential city with a population estimated at 30,000, joins the continually growing list of cities that are protecting life and property with the **Gamewell Three-Fold Fire Alarm System.**

The cost, amortized over a twenty-year period and including a liberal allowance for maintenance, is approximately $3,750.00 annually. Insurance reductions actually allowed are estimated at $18,102.00 annually on present buildings and contents—**A Profit of $14,352.00 Annually or 373%.**

Make the Gamewell Three-Fold Alarm System Your First Line of Defense Against Fire.

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